DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed 07/09/08. Claims 1, 3-16, 39, 40, 42-77 and 79-99 are pending. Currently no claims are in condition for allowance.

Claim Rejections - 35 USC § 102

2. Claims 1, 3-11, 15, 16, 39, 40, 42, 43, 48-58, 62-39, 71-73, 79-88, 90-92 and 97-99 are rejected under 35 U.S.C. 102(e) as being anticipated by Myles et al. ()US 6,879,579 B1).

Regarding claims 1 and 54, Myles discloses a method of accessing a wireless multiple-access communication system, comprising:

receiving at least one broadcast message including information regarding configuration of at least two contention-based random access channels for a frame (each up-link channel is defined to be in one of three states; empty, reserved or owner. The hub station transmits the state of the next channel (along with other control fields) to the mobile stations in the header field of each down-link slot; column 11, lines 1-6);

determining a current operating state of a terminal (registered or unregistered (column 8, lines 23-26));

selecting one contention-based random access channel from among at least two contention-based random access channels based on the current operating state (selecting form a plurality of channels based on "an empty-state", "a reserved-state", or "an owner-state" column 4, lines 55-60); and

transmitting a message on the selected random access channel to access the system during the frame (a mobile station transmits messaged based on "an empty-state", "a reserved-state", or "an owner-state; up-link and down-link slot pairs are scheduled over a frame (column 10, lines 12-13; column 11, lines 7-11)),

wherein the at least tow random access channels comprise a first random access channel used by registered terminals for system access (registered terminals access the system using modified R-ALOHA protocol (column 11, lines 9-16)) and a second random access channel used by registered and unregistered terminals for system access (empty-state; any mobile station with queued data units is allowed to contend for access the system using a slotted ALOHA protocol. Mobile stations may make reservations for the channel in future frames according to a modified R-ALOHA protocol).

Regarding claim 3, Myles discloses the method, wherein transmissions on the first random access channel is compensated for propagation delay (column 9, lines 51-62).

Regarding claims 4, 65 and 82, Myles discloses the method wherein the current operating state is indicative of whether or not the terminal has registered with the system (column 8, lines 40-44).

Regarding claims 5, 16, 66 and 83, Myles discloses the method of claim 1, wherein the current operating state is indicative of whether or not the terminal can compensate for propagation delay to an access point receiving the message (see fig. 10; column 9, lines 51-62).

Regarding claims 6-8, 67 and 84-86, Myles discloses that users are informed interference via a feedback channel, and if interference has occurred, the packet is retransmitted after a random time delay (see figs. 11b-c; column 8, lines 45-50).

Regarding claim 9, the method of claim 1, wherein the transmitting includes selecting a slot from among a plurality of slots available for the selected random access channel, and transmitting the message in the selected slot (column 13, lines 1-10).

Regarding claims 10, 11, 68, 69, 87 and 88, the method of claim 1, wherein the message includes an identifier for the terminal (see fig. 9).

Regarding claim 15, Myles discloses a method of accessing a wireless multiple-access multiple-input multiple-output communication system, comprising:

determining whether a terminal is registered or unregistered with the system (column 8, lines 23-26);

if the terminal is registered, transmitting a first message on a first contention-based random access channel to access the system (column 11, lines 13-17); and

if the terminal is unregistered, transmitting a second contention-based message with a different format (un-registered mobile station use a modified ALOHA protocol; column 8, lines 24-26) than the first message on a second random access channel to access the system (column 11, lines 7-12).

Regarding claims 39 and 40, Myles discloses a terminal in a wireless multiple-access communication system, comprising:

means for determining a current operating state of the terminal (registered or unregistered (column 8, lines 23-26)):

means for transmitting messages to the system, wherein the means for transmitting messages is configured to transmit a first message on a first contention based random access channel to access the system when the terminal is in a first operating state and to transmit a second message on a second contention-based random access channel to access the system when the terminal is in a second cooperating state (selecting form a plurality of channels based on "an empty-state", "a reserved-state", or "an owner-state" column 4, lines 55-60), and the second message has a different format than the fist message (column 3, lines 25-30; see Fig. 11a-c; column 12, line 62-columc 13, line 10); and

Regarding claim 42, Myles discloses the method wherein receiving the at least one broadcast message comprises receiving at least two broadcast messages each associated with a different of the at least two random access channels (column 10, lines 12-18; line 62-column 11, line 6).

Regarding claim 43, Myles discloses the method further comprising determining a slot to transmit the message on the one contention-based random access channel based upon a slot assigned to the at least one contention-based random access channel in the at least one broadcast message and wherein transmitting comprises transmitting the message in the slot of the frame (column 11, lines 1-6).

Regarding claim 48, Myles discloses the method wherein determining the current operating state of a terminal comprises determining if the terminal is scheduled and the method further comprising utilizing a data channel, and not selecting one contention-based random access channel, for transmission (column 13, lines 3-10).

Regarding claim 49, Myles discloses the method wherein a first contention-based random access channel of the at least two contention-based random access channels corresponds to a contention-based random access channel used by a terminal after acquiring system frequency, wherein determining comprises determining whether the terminal has acquired the system frequency, and wherein selecting comprises selecting the first contention-based random access channel as the one contention-based random access channel when the terminal has acquired the system frequency and is not registered (column 11, lines 7-11).

Regarding claim 50, Myles discloses the method of claim 1, wherein transmitting the message comprises transmitting a different message format (empty, reserved or an owner state) on each of the at least two contention-based random access channels (column 4, lines 40-45).

Regarding claims 51, 62 and 97, Myles discloses the method further comprising receiving an assignment responsive to the message from a base station (column 9, lines 54-60).

Regarding claims 52, 63, 79 and 98, Myles discloses the method wherein receiving the assignment comprises receiving an acknowledgement in a message including the assignment (column 9, lines 54-60).

Regarding claims 53, 64 and 99, Myles discloses the method further comprising determining scheduling information of the assignment for a channel distinct from the at least two contention-based random access channels (column 10, line 62-column 11, line 6).

Regarding claims 55, 71 and 90, Myles discloses the method further comprising receiving information corresponding to parameters conveying configuration information for the first contention-based random access channel (column 6, lines 5-16; column 10, lines 19-28).

Regarding claims 56, 72, and 91, Myles discloses the method wherein the information is received via a broadcast message (claim 8 and 69).

Regarding claims 57, 73 and 92, Myles discloses the method further comprising receiving information corresponding to parameters conveying configuration information for the second contention-based random access channel in another broadcast message different than the broadcast message (claim 8 and 69).

Regarding claim 58, Myles discloses the method further comprising determining a slot to transmit the message on the first contention-based random access channel based upon the parameters and wherein transmitting comprises transmitting the first message in the slot (column 6, lines 5-16; column 10, lines 19-28.

Regarding claim 80, Myles discloses the terminal wherein the at least one channel other than the at least two contention based random access channels is a forward link data channel and the controller is operative to communicate using forward link data channel (column 8, lines 40-50).

Regarding claim 81, Myles discloses the terminal wherein the at least one channel other than the at least two contention based random access channels is a reverse link data channel and the controller is operative to communicate using forward link data channel (column 8, lines 40-50).

Claim Rejections - 35 USC § 103

3. Claims 14, 44-47, 59-61, 74-77 and 93-96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myles.

Myles discloses all the claim limitations as stated above. However, Myles does not expressly disclose that the multiple-access communication system uses OFDM.

It would have been obvious to one ordinary skill in the art at the time the invention was made to use OFDM in the communication system of Myles. One ordinary skill in the art would have been motivated to do this because using OFDM reduces multiple-access interference so that spectral efficiency and high data rate limits in a common wireless channel are increased.

4. Claims 12, 70 and 89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myles in view of du Crest et al. (US 2004/0047292).

Myles discloses all the claim limitations as stated above. Further, Myles discloses that each of the stations is assigned a unique identification. However, Myles does not expressly disclose a common identifier used by unregistered terminals.

Crest teaches that when a traffic channel shared by more than one user terminal, an identifier can determine terminal by a temporary flow identity. This identifier survives only for the duration of the channel, i.e. it does not code for the user terminal uniquely but is merely used to identification of messages to or from a particular user terminal for the time period of the respective channel transmission (0057).

It would have been obvious to one ordinary skill in the art at the time the invention was made to use the teachings from Crest of using a common identifier in the system of Myles. One of ordinary skill in the art would have been motivated to do this because using a common identifier allows reusing and sharing the same identifier.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Myles in view of Caldwell (US 2002/0122393).

Myles discloses all the claim limitations as stated above, except for multiple-access communication system supports terminal with multiple antennas.

Caldwell teaches in Fig. 1, a mobile terminal that comprises two antennas 12 and 26. It would have been obvious to one ordinary skill in the art at the time the invention was made to use the teachings from Caldwell of using multiple antennas in the system of Myles. One of ordinary skill in the art would have been motivated to do this because multiple antennas allows the mobile terminals to measure the quality of signal reception by each of the two antennas and selects the one of the at least two antennas providing the better quality of signal reception.

Response to Arguments

6. Applicant's arguments filed 07/09/08 have been fully considered but they are not persuasive. Applicant argues (Remarks, page 14) that Myles does not teach *"a random access channel used by registered and unregistered terminals for system access"*, as recited in amended claim 1. Examiner respectfully disagrees. Myles clearly discloses that "each up-link channel is defined to be in one of three states; empty (unregistered), reserved or owner (registered). The hub station transmits the state of the next channel (along with other control fields) to the mobile stations in the header field of each down-link slot; column 11, lines 1-6. Further, Myles discloses "a mobile station transmits messaged based on "an empty-state", "a reserved-state", or "an owner-state; up-link and down-link slot pairs are scheduled over a frame" (column 10, lines 12-13; column 11, lines 7-11).

Further, Applicant argues that Myles fails to teach "*transmitting a first message on a first contention based random access channel.... Transmitting a second contention-based message with different format than the first message on a second random access channel*", as set forth in claims 15, 39 and 49. Examiner respectfully disagrees. According to the IEEE 802.11 standard **contention based and non-contention** employs different access rules and **frame format**. Furthermore, Myles discloses that the number of slot pairs in a frame is decided dynamically by the hub station, taking into account the type and channel parameters they require..... the frame size may change to accommodate mobile station service requirements or changes in the number of mobile station... (column 10, lines 21-27).

Still on page 14, Applicant describes details of Fig. 4 and Paragraph 0038 of the publication of the present application. However the claim language does not describe this implementation and is much broader.

Further, Applicant argues that Myles does not teach or suggest *"any type of random access channels for use by both registered and unregistered mobile stations."* Examiner respectfully disagrees. Myles clearly discloses that the invention has the benefit of simultaneously…. "provides parameters to maximize the probability of successful transmission by one mobile station in situations of competitive access to a slot, including registration slots and empty slots" (column 6, lines 5-16). Further, Myles discloses that an owner of a channel may use the channel in a reserved state regardless of a mobile station that has reserved the channel (column 11, lines 13-16).

Examiner also notes that similar arguments were presented regarding Myles in view of Crest and Caldwell on pages 16-17. The Examiner takes the same position as stated above.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SABA TSEGAYE whose telephone number is (571)272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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